total weight being 1000 kilogrammes. Two windows on the northern side are closed by wooden covers, which, when opened, present two ample working tables. The building-up of the station at the first place to which it was sent (a pond near Biechovic) required two hours and a half.

The scientific work began in the second half of June, and since that time, every week or fortnight, Dr. Fritsch with his assistants has visited the station. After the temperature of the air, and of the water on the surface and at different depths, has been noted, the surface fauna is taken by a tow-net (Fig. 2, 1). This contains mostly Copepods, Rotators, and *Daphnia kahlbergensis*, Schœdler. Then the fauna at a depth of 1 metre is taken by a net fixed on a long bamboo (Fig. 2, 2). The net contains generally the genera Daphnia, Bosmina, and Leptodora. Next, the fauna at a depth of 2 metres is taken by a long net (Fig. 2, 3), on which weights are fixed, and which is drawn out of the water by a string that closes the net by tightening it in the centre. This manipulation prevents the fauna from a depth of 2 metres from being mixed with that of the higher portions of the water. Large Daphnids are found here in great numbers. The same instrument is used in deeper parts of the pond. Mud is carried up by a strong net (Fig. 2, 4), and washed in sieves (7 and 8). The *Allona leydigii* is a common appearance there. These operations finished, the littoral fauna at various places is taken, consisting most commonly of large Sida and Lynceus. Fishing has been carried on in the same way by night, in January, under the ice-cover. Sometimes carp (*Cyprinus carpio*) have been taken at night, that the contents of their alimentary canal might be examined. The living material acquired in this manner is carefully killed by osmic and chromic acids, and preserved in strong alcohol.

The investigations will be continued throughout the year, and the results afterwards published in the *Archiv für naturwissenschaftliche Landesdurchforschung von Böhmen*. The station will, by and by, be transferred to some of the ponds in Southern Bohemia, or to one of the mountain lakes.

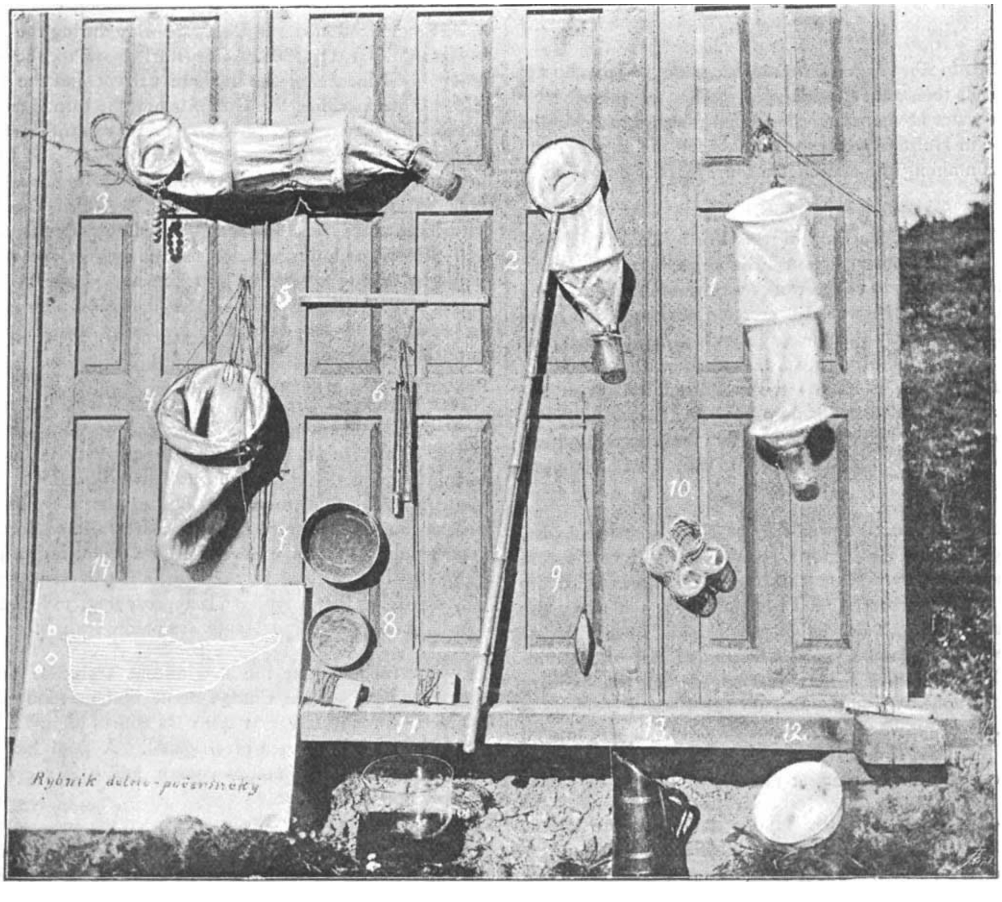

Fig. 2.

NOTES.

Arrangements are being made by the Berlin Academy of Sciences for an interesting scientific undertaking. During the summer of this year a ship is to be despatched for the investigation of the pelagic fauna of the Atlantic, especially along the coast from Greenland to Brazil. Prof. Hensen, of Kiel, will be at the head of the party, which is expected to start in July.

The death of M. G. Meneghini is announced. He had been Professor of Geology at Pisa from 1849, and died at the age of 78.

We have also to record the death of Dr. Heinrich Ernst Karl von Dechen, the eminent geologist and mineralogist, well known for his numerous works on geology. He was born at Berlin on March 25, 1800, and died at Bonn on February 15.

A LADY, Mdlle. G. Cattani, has been appointed a *privat-docent* of general pathology in the Faculty of Medicine at Turin.

PROF. E. WIEDEMANN has issued a circular about a matter which has considerable interest for men of science. Journals devoted to particular branches of science very often, as he points out, reprint papers which have been originally published by scientific Societies, and omit to indicate the sources from which the papers are taken. It also happens sometimes that articles are sent simultaneously to various periodicals, and appear sooner or later in all of them, either in the original language or in translations. The consequence is that those whose duty it is to look out for the latest information on any subject are put to a vast amount of inconvenience, since it is frequently impossible for them to feel sure that communications which seem to be new are really new. Prof. Wiedemann—who has of course had much experience, in connection with the *Annalen der Physik und Chemie*, of the trouble caused in this way—appeals to men of science generally, and to the scientific Press, to indicate, in every case in which a paper is reprinted, the fact that it has appeared before, and to state whether the paper has been shortened or expanded or otherwise changed.

ACCORDING to *Die Natur*, Dr. Otto Zacharias, of Hirschberg, Silesia, intends to establish a zoological station for the observation of fresh-water fauna. It is considered that the banks of the Plöner Lake in Holstein would be suitable for the purpose, and funds for maintaining the station for four years are now being collected.

AT the half-yearly meeting of the Forth Railway Bridge Company, held the other day in Edinburgh, very favourable reports as to the progress of the works were submitted. During the past six months the work of erection has proceeded more rapidly and satisfactorily than in any previous half-year, and at the present time the total weight of steel work erected, including the viaduct approach, is 43,500 tons. The last bays of the cantilevers are in an advanced state of manufacture in the shops, and the material is being delivered for the central girders connecting the cantilevers, the erection of which will complete the bridge.

DR. HANS REUSCH, the well-known Norwegian geologist, invites through the Press reports respecting the recent severe earthquakes in Norway. From those to hand it appears that the earthquake of December 23, at 12.15 p.m., was felt along the whole coast of the North Bergenhus province and in the districts around the Stat promontory. On December 27, about midnight, another shock was felt at Bremanger; and on January 6, at 8 p.m., one at Florö, also on the Bergen coast. On January 12, at 4.7 p.m., a fourth shock was felt in and around Bergen. Finally, a shock was felt in the neighbourhood of Christiansand on December 27, at 11.44 a.m.

WE have received from the Hydrographer of the United States a discussion, by Lieut. Everett Hayden, U.S.N., of the great storm of March 11–14, 1888, known as the New York "blizzard." In NATURE, vol. xxxviii. p. 204, we referred briefly to the behaviour of this memorable storm over the land; the discussion now in question deals with its action over the ocean, and more particularly off the Atlantic coast of the United States, from all data at present available. The meteorological conditions at noon (G.M.T.) for the area included between latitude 25° and 50° N., and longitude 50° and 85° W., are exhibited on charts for each of the above four days. The charts show that on the 11th a trough of low pressure was extending from the coast of Florida towards the southern limits of Hudson Bay, and was moving towards the coast at the rate of 600 miles a day. On the morning of the 12th the centre of the storm passed almost directly over New York, blowing with hurricane force, the barometer reading 29·2 inches. On the 13th, the storm area was still skirting the coast of the United States, the centre being about midway between New York and Boston, and the barometer had fallen to 28·9 inches. By the 14th, the great wave of low barometer had overspread the entire western portion of the North Atlantic. The discussion furnishes an instructive example of a somewhat uncommon class of storms, where the usual law founded on the circular theory was to a large extent inapplicable.

THE Pilot Chart of the North Atlantic Ocean for February, issued by the Hydrographer of the United States, shows that the weather in the Atlantic during January was somewhat milder than usual. No severe storms were reported during the first three weeks of the month. There was a noticeable increase in the amount of fog encountered, but it was confined principally to the neighbourhood of the Grand Banks and the British Isles. A supplement to the Pilot Chart describes the remarkable cruise of the derelict American schooner *W. L. White*, which was abandoned off Delaware Bay during the great blizzard, on March 13, 1888. She started off to the southward under the influence of the in-shore current and the north-west gale. Upon reaching the Gulf Stream she turned away to the eastward, and commenced her long cruise towards Europe. On reaching the mid-ocean, between latitude 44° and 51° N., and longitude 33° and 44° W., she followed a remarkable zig-zag track, from the beginning of May till the end of October, being drifted backwards and forwards by the Labrador current and the Gulf Stream, and during these six months alone she was reported by thirty-six vessels. On January 23 she was stranded on one of the rocky islands of the Hebrides, after drifting for ten months and ten days, and traversing a distance of more than 5000 miles.

THE Hydrographer of the Navy has issued a notice that storm-signals are now shown at Manilla (Philippine Islands). The signals consist of (1) a drum (colour not stated), indicating a storm at a great distance, in an unknown direction; (2) a cone, point upwards or downwards, indicating that a cyclone will pass some distance to the northward or southward, respectively; (3) a cone, point upwards over or under a drum, indicating that a cyclone will pass close to the northward or southward; (4) a ball, signifying that a typhoon is approaching, and that all traffic is prohibited. The signal-staffs are painted white.

IT is estimated that the magnificent stalactite cave lately discovered near Reclère, Canton Berne, is about 1600 metres long, 600 metres broad, and from 4 to 20 metres high. The greater part of it has not yet been investigated. A pool has been discovered, measuring 25 metres square, and it is supposed to be the only one in the cave.

A WRITER in the American *Monthly Microscopical Journal*, calls attention to what seems to be a real danger in connection with the kissing of the Bible in courts of law. "The lips," he says, "are most sensitive to the reception of disease-germs, and from the motley throng of dirty and diseased persons who appear in court and kiss the book, what infectious germs may not be obtained through this medium of distribution? It would be interesting for microscopists to examine such greasy and worn backs of court Bibles as they can have access to, and to report the kinds and amounts of Bacteria found thereon. . . . In a Massachusetts school where scarlet fever and measles had prevailed, some text-books fell into disuse, were put away for a time, and, when wanted, got out and re-distributed, several months having elapsed. In but a few days after the re-issue of the books the children began to come down with measles. There can be little doubt that scarlet fever is transmitted in the same way."

SIR HENRY PEEK has compiled an interesting catalogue of his collection of birds at Rousdon. The catalogue consists of two parts. The first is accompanied by an outline index plate of each case, by means of which one may identify every bird in the case, and find out its name and some other details regarding it, by consulting the list. The second part consists of an alphabetically arranged list of both the English and the scientific names of every bird, with reference to its case, compartment, and number on the index plate, so that any particular bird required may be found without difficulty. The index plates, as Sir Henry Peek points out in the preface, save the necessity of affixing labels or numbers to the birds, which would have interfered with the artistic appearance of the groups.

UNDER the title "The True Position of Patentees," Mr. H. Moy Thomas has published, through Messrs. Simpkin, Marshall, and Co., a little book in which the patent laws and regulations at home, abroad, and in our colonies and dependencies, are explained for the information of English inventors.

MESSRS. MACMILLAN AND CO. will publish in September the Eleventh Book of Euclid, Propositions 1–21, with alternative proofs, exercises, and additional theorems and examples, by Mr. F. H. Stevens, of Clifton College, joint editor of Hall and Stevens's Euclid, Books i.–vi. Later on it is the intention of Mr. Stevens to issue a book on elementary solid geometry and mensuration, containing the matter included in the above-mentioned volume, with a section on polyhedrons and solids of revolution, treated geometrically and numerically, with exercises on the mensuration of plane and solid figures.

MESSRS. LONGMANS AND CO. have in the press "A Handbook of Cryptogamic Botany," by A. W. Bennett and George Murray. No general hand-book of Cryptogamic botany has appeared in the English language since Berkeley's, published in 1857. The present volume will give descriptions of all the classes and more important orders of Cryptogams, including all the most recent discoveries and observations.

A NUMBER of remarkable salts of hydrazine or amidogen have been prepared by Drs. Curtius and Jay, in the course of their work upon the hydrazine compounds, which has so successfully resulted, as noticed in these columns a fortnight ago (p. 377), in the isolation of the hydrate of amidogen, $N_2H_4 . H_2O$. Amidogen, as indicated by the strong alkalinity of its hydrate, and by the well-known reactions of its organic substitution-products, is a powerful base, and combines with acids to form salts of considerable stability at ordinary temperatures. Perhaps the most interesting of these salts, and the one utilized for the preparation of the liquid hydrate itself, is the di-hydrochloride, $\begin{array}{l} NH_2 . HCl \\ | \\ NH_2 . HCl \end{array}$. This salt possesses a most striking resemblance to ammonium chloride, crystallizing in the cubic system, and depositing, on rapid evaporation, in the same beautiful feathery forms. It differs, however, from ammonium chloride in being very deliquescent. When heated to 198° C., it fuses, with evolution of hydrochloric acid, to a clear glass consisting of the mono-hydrochloride, $\begin{array}{l} NH_2 . HCl \\ | \\ NH_2 \end{array}$ On further heating to 240°, it is entirely decomposed, with evolution of free nitrogen and hydrogen and sublimation of ammonium chloride—

$$2\begin{array}{l} NH_2 . HCl \\ | \\ NH_2 . HCl \end{array} = 2NH_4Cl + N_2 + H_2 + 2HCl.$$

Contrary to the usual behaviour of bases of the ammonium type, platinum chloride in acid solution gives no platinochloride; the reducing action comes so violently into play that the platinic salt is reduced to platinous chloride, with copious evolution of nitrogen gas. The sulphate, $\begin{array}{l} NH_2 \\ | \\ NH_2 \end{array} . H_2SO_4$, like ammonium sulphate, is anhydrous, and crystallizes in optically biaxial prisms. It is the most insoluble of the hydrazine salts in cold water, and is precipitated from cold solutions of all the other investigated salts by dilute sulphuric acid; it readily dissolves, however, in hot water. On heating it melts at 254° with explosive evolution of gas, breaking up into ammonium sulphite, sulphurous acid, sulphuretted hydrogen, and, most remarkable of all, large quantities of free sulphur. The carbonate is obtained by saturating a solution of the hydrate with carbonic acid gas, and evaporation *in vacuo* as a highly deliquescent mass. The nitrate can readily be obtained from the carbonate by treatment with nitric acid; it crystallizes well, and is also extremely soluble. The acetate and oxalate have also been obtained in fine crystals. All these salts possess the same exceptional reducing powers, free nitrogen and water being formed in the process. They all decompose on heating with formation of salts of ammonium, and of gaseous nitrogen and hydrogen. One of their most important properties is their reaction with nitrous acid; on mixing any salt of hydrazine with a salt of nitrous acid, free nitrogen is evolved with almost explosive violence. It is finally of considerable significance that those which crystallize well appear to be isomorphous with the corresponding ammonium salts.

A BELGIAN, M. Nizet, of the Royal Library of Brussels, proposes to issue a periodical catalogue or table of all papers published in all the periodicals in the world. Of course the titles of the papers are to be methodically grouped under a certain number of divisions.

THE following are the arrangements for science lectures at the Royal Victoria Hall during the month of March:—Tuesday, March 5, "A Visit to the Moon: how we got there and what we saw," by Prof. Carlton Lambert; Tuesday, March 12, "A Tramp among the Mountains at Home and Abroad," by Prof. Kennedy, F.R.S.; Tuesday, March 19 and 26, two lectures, by Prof. H. E. Armstrong, on the "History of a Crime unravelled by a Piece of Rusting Iron, a Horse-shoe, and a Match."

THE *Indian Forester*, in a review of the work of the Forest Department under the rule of Lord Dufferin, says that the total number of prosecutions for offences against the forest laws has been steadily diminishing. The area under protection from fire has risen from 15,570 to 18,691 square miles. Large areas have been withdrawn from nomadic grazing; and, generally speaking, the old and wasteful methods have been displaced by an entirely new system, which is only now making itself felt. The influence of forest conservancy on the rainfall, the temperature, and the water-supply is becoming appreciated by the people of India. Large additions have been made to the teak plantations of Burma, and great quantities of mahogany have been planted at Nilambur. The revenue has risen from 67 lacs in the years 1876–80, to 94 lacs during the viceroyalty of Lord Ripon, and to 116 during that of Lord Dufferin. These figures do not include the money received from Upper Burma, where the loosely-drawn leases have given infinite trouble to the officials. The staff is too weak for the work, but a re-organization scheme is under consideration. The forest class at Cooper's Hill, and the working of the Dehra Dun School, will no doubt improve the standard of knowledge of the officials.

IN the recent Report of the Bombay Chamber of Commerce it is said that the opinion of the Chamber was solicited as to the advisability of introducing a uniform standard of weight throughout the Presidency. A Committee was appointed, but there was some difference of opinion amongst the members as to the most convenient standard. Some were in favour of adopting the scale used by the railway companies in Bombay—that is, 180 grains = 1 tola, and so on up to 1 candy; but the majority thought that the English system of hundredweights, quarters, and pounds would be the best, and to this view the Chambers of Commerce of Bengal, Madras, and Kurrachee have assented. The Committee, however, refrained from urging on the Government to alter the present standards. The Government of India have appointed a Commission to inquire into the whole matter.

M. Resin has published, in the *Izvestia* of the Russian Geographical Society, interesting sketches of the natives of Kamchatka, made during a cruise on the schooner *Sibir*. It appears that the Kamchadales and the Aleutes are rapidly abandoning their mother language, and speak a very broken Russian—the more broken as the Russians themselves, in order to be better understood, speak a language which has hardly any likness to their mother tongue. The population of Kamchatka, which was carefully registered in 1878 and 1879, shows a regular decrease; since the time of Krasheninnikoff's journey (in 1741) the population seems to have been reduced to one-half of what it was 148 years ago. Years of scarcity of fish, the staple food of the population, are quite common. In such cases the Lamutes and the Koryaks usually bring to the Kamchadales a number of their reindeer; but this voluntary help is not sufficient to prevent starvation. Hunting becomes less and less profitable. The following figures represent the results of hunting during the winter of 1884–85: 2,915 sables, 159 foxes, 321 otters, 302 ermines, 120 mountain sheep, and 767 reindeer. It is noteworthy that no diminution of population is remarked among the Tchukches on the coasts of the Arctic Ocean.

Last week we quoted from Prjevalsky's "Fourth Journey to Central Asia" a description of fiery sunsets he had observed in crossing the Gobi. The same work contains the following remarks as to the action of wind upon the soil in the deserts of Central Asia:—"One must see the wind blowing in the desert to appreciate its force. Not only dust and sand fill the atmosphere, but sometimes smaller gravel is lifted into the air, while larger stones are rolled over the surface of the soil. At the foot of the Altyn-tagh, in the neighbourhood of the Lob-nor, we saw how stones as big as a man's fist, having been whirled into the hollow of a larger piece of rock by the storm, were making deep holes, and had even pierced through a slab of sandstone 2 feet thick." In accordance with Richthofen's views, Prjevalsky was inclined to explain the formation of loess by the force of wind, but he was not aware of the geographical distribution of loess—that is, its disposition as a girdle along the foot of all the mountains of Central Asia, and its absence on the plateaus, even in the parts which are protected from wind. On the other hand, the winds of the desert really afford an explanation of the strange coarse gravel, quite devoid of any particles of finer sand and loam, which covers the Gobi. The winds must have blown away the finer parts of the gravel.

We have received the Triennial Calendar of the Tungwen College of Pekin, at which over a hundred students are prepared for the Government service. The full course, literary and scientific, extends over eight years, the first three being devoted exclusively to foreign languages, and the remainder to the acquisition of scientific and general knowledge through the medium of these languages. After the completion of the general course, students may, if they please, remain in the College, or be sent abroad at the option of the Government, for the pursuit of special studies with a view to professional use. The method of paying the students is thus described in the Calendar:—The object of the College being to train men for special service, the number is limited, and all admitted are, with a few exceptions, paid by the Government. During the first year the student is on probation, and receives his food and lodging only. He then gets an allowance of about three taels (14*s.* or 15*s.*) a month. In two or three years this stipend is doubled if the student progresses satisfactorily, and it is again increased to ten taels a month at the end of five or six years. If a student is sent to pursue his studies in foreign countries, the allowance is one hundred taels a month, which is increased to two hundred taels when he is made a third-class interpreter. The preparation of books for the diffusion of scientific and general knowledge is part of the work of the College. Amongst those prepared and published already are works on natural philosophy, chemistry, practical economy, chemical analysis, mathematical physics, anatomy, astronomy, &c.

In the "Note" last week about a Greenland whale which went ashore in the Sound (p. 398), *for* "90 feet in length" *read* "60 feet in length."

The additions to the Zoological Society's Gardens during the past week include a Macaque Monkey (*Macacus cynomolgus* ♀) from India, presented by Mrs. Nicol; an Indian Chevrotain (*Tragulus meminna* ♀ juv.) from India, presented by Mr. George Score; a Hybrid Polecat (between *Mustela putorius* and *M. furo*), British, presented by Mr. J. Herbert B. Cowley; an Owen's Apteryx (*Apteryx oweni*) from New Zealand, presented by Prof. T. Jeffrey Parker, C.M.Z.S.; a Common Buzzard (*Buteo vulgaris*) from Spain, presented by Captain J. V. Harvey; eight Common Swans (*Cygnus olor*), European, deposited; seven Common Gulls (*Larus canus*), from Holland, five White's Tree Frogs (*Hyla cœrula*) from Australia, purchased; a Collared Fruit Bat (*Cynonycteris collaris*), born in the Gardens.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1889 *MARCH* 3–9.

(For the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

***At Greenwich on March* 3**

Sun rises, 6h. 42m.; souths, 12h. 12m. 3·0s.; sets, 17h. 42m.: right asc. on meridian, 22h. 57·9m.; decl. 6° 37′ S. Sidereal Time at Sunset, 4h. 29m.

Moon (at First Quarter on March 9, 18h.) rises, 7h. 48m.; souths, 13h. 35m.; sets, 19h. 35m.: right asc. on meridian, 0h. 20·7m.; decl. 3° 6′ S.

Planet.	Rises.	Souths.	Sets.	Right asc. and declination on meridian.	
	h. m.	h. m.	h. m.	h. m.	° ′
Mercury..	5 47 ...	10 36 ...	15 25 ...	21 21·9 ...	14 18 S.
Venus.....	7 39 ...	14 57 ...	22 15 ...	1 43·8 ...	14 6 N.
Mars......	7 30 ...	13 54 ...	20 18 ...	0 40·5 ...	3 56 N.
Jupiter....	3 37 ...	7 33 ...	11 29 ...	18 18·4 ...	23 4 S.
Saturn....	14 46 ...	22 23 ...	6 0*...	9 10·9 ...	17 30 N.
Uranus...	21 12*...	2 36 ...	8 0 ...	13 20·1 ...	7 45 S.
Neptune..	9 22 ...	17 5 ...	0 48*...	3 51·4 ...	18 29 N.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Mar.	h.	
4 ...	0 ...	Mars in conjunction with and 5° 2′ north of the Moon.
5 ...	11 ...	Venus in conjunction with and 8° 57′ north of the Moon.
5 ...	20 ...	Venus at least distance from the Sun.

Saturn, March 3.—Outer major axis of outer ring = 45″·2; outer minor axis of outer ring = 12″·5: southern surface visible.

Meteor-Showers.

	R.A.	Decl.	
Near Capella...	50° ...	48° N.	
From Coma Berenices ...	190 ...	25 N. ...	March 8.
Near γ Herculis	244 ...	16 N. ...	March 7. Very swift.